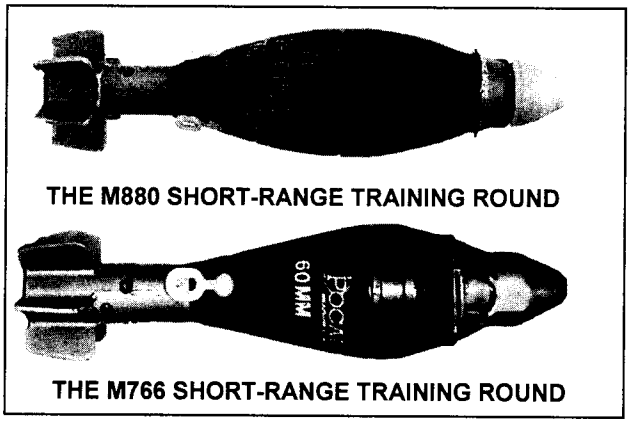
Mortar Short-Range Training Rounds

Cost Effective, but Misunderstood

CAPTAIN GARY D. JONES

There has always been a need for a realistic mortar training cartridge that will let units train economically while saving on service ammunition. The Army began using sabot sub-caliber training rounds in the 1970s and 1980s. The M1 sabot was used with the 81mm mortar, and the M3 sabot with the 60mm mortar. Both cartridges were inaccurate, had high misfire and dud rates, and caused excessive carbon build-up in the cannon. These drawbacks did not help the mortar platoon experience realistic training, but these deficiencies are things of the past.

In contrast, today's short-range training rounds (SRTRs) are highly accurate, have low misfire and dud rates, and cause no more carbon build-up than regular service ammunition. An 81mm short-range cartridge was evaluated by the Army and type classified in 1986 as the M880 SRTR. A similar round, the M766 SRTR, was developed for the 60mm mortar and released in 1998.



THE M880 SHORT-RANGE TRAINING ROUND

THE M766 SHORT-RANGE TRAINING ROUND

In order to conduct successful training with the SRTR, leaders must know the correct steps in the preparation process:

- Set up training.
- Coordinate with range control to select a designated location.
- Build a scaled firing range (permanent, semi-permanent, or temporary).
- Set up a range to support the scenario for 1:10 scale.

The SRTR makes it possible for soldiers to train more frequently and at less cost. Yet current usage rates are extremely low, approximately 25 to 35 percent of the number authorized. Understanding the history, capabilities, characteristics, advantages, and disadvantages of the SRTR will help leaders in the planning and execution of mortar training.

The following are some of the advantages of using the SRTR:

It is effective for training all elements of the indirect fire team. The forward observer (FO) can watch the round throughout its flight. On impact, it gives a flash, an audible bang, and a smoke signature, with no fragmentation. This signature allows all supporting elements to spot rounds, make adjustments, and process the needed information. The fire direction center (FDC) computes data received from the FO; the gunner places the data obtained from the FDC on the mortar; and the assistant gunner drops a round down the barrel. The entire indirect fire team functions the same as it would firing service ammunition, with one exception—the FO observes the round's impact on a 1:10 scaled range.

It is designed to be fired, recovered, refurbished, and re-fired. A mortar section uses the same procedures it uses with service ammunition. The 81mm SRTR has a range of 47 to 458 meters, and the 60mm SRTR, 56 to 538 meters, depending on charge and elevation data from the firing tables.

The M880 SRTR comes ready to fire, packed in an 8-round wooden, wire-bound box. It is designed to be fired and recovered a minimum of ten times, and with good care and maintenance, many rounds have been fired more than ten times. (This round, when first issued, costs $52.00, and a refurbishment kit costs $16.00, a substantial saving over conventional ammunition. One round of 800 series high-explosive ammunition costs $218.00. A 100-round practice fire for an ARTEP using conventional ammunition costs $21,800. Using the M880, the cost of 100 firings would be $1,908, which amounts to a saving of more than 90 percent.)

The M766 SRTR is issued in a 16-round case, ready to fire. Each round can be re-used and re-fired up to 24 times by refurbishing with the kit. (Each complete round costs about $64.00, and each refurbishment kit costs about $15.00.)

It provides opportunities to prepare soldiers and units for combat. This training enables the unit commander to observe the actions of the indirect fire team and the tasks it performs. He is then better able to evaluate the proficiency of all elements of the

training, identify and isolate problems, and begin corrective training.

It can be fired in training areas where service ammunition is not allowed. This saves time by eliminating long-distance travel to standard mortar ranges and also saves on vehicle maintenance and fuel costs.

It uses the entire indirect fire team. These rounds simulate actual service ammunition, and the team uses the same procedures. Each member of the team can view the overall operation, which helps him understand the roles of the other members during training. Also, the mortar platoon uses all of the organic equipment required when it fires service ammunition, which reinforces the procedures used in combat.

It is recovered intact, leaving no fragments. Since the M880 and M766 do not explode, they have no adverse effect on the environment. These rounds eliminate the problem of unexploded ordnance disposal, as sometimes occurs with conventional ammunition. Because the SRTR does not pose a threat to the environment, it can be fired almost anywhere. When it is time to dispose of a spent round, the steel body and aluminum tail fin can be recycled.

Given all of these advantages, why are usage rates so low? Most of the problems result from a general misunderstanding of the training round itself, but the following are some of the other contributing factors:

Leader misconceptions of the SRTR. Senior leaders are not well-informed of the advantages of the SRTR and what it can do for them in a training environment. During the fielding of the rounds, many unit leaders were not present for training, and hence did not become aware of the training advantage the SRTR offers. This is a primary reason why units do not train with the SRTR.

Time lost when firing the SRTR. The time it takes to prepare, operate, maintain, and recover rounds does reduce training time. To ensure that platoons make the most of their training opportunities, leaders must accomplish several tasks. They must have a training scenario that complements the brigade's long-range training plan. In their planning, leaders must also refine training and follow up on the availability of ranges and ammunition to meet training requirements.

Training restrictions on firing ranges. When all of the rounds have been fired, training must stop until the rounds can be recovered and readied for use again. The range is closed and the soldiers are organized in teams to go down-range to start the recovery phase. To maximize use of training time, a designated recovery team within the platoon should rehearse the recovery and refurbishment process in advance. A platoon SOP on the procedures should include a spotter to locate the point of impact, how long the recovery team should continue to look for rounds that have not been found, and prior training for soldiers on the SRTR.

Adverse weather and surface conditions. These conditions make it harder to find rounds on the ground. Range maintenance—clearing brush, mowing grass, filling in puddles—is a must when firing the SRTR. Commanders must realize that adverse weather conditions will influence the effectiveness of training as well as safety. And leaders can expect that more time will be required to complete the training mission. Extra equipment is also needed—a refurbishing table, water, rags, and brushes. To make it easier for the soldiers to refurbish the rounds in a reasonable time, the unit should have a vehicle assigned for the recovery task, and bleachers with overhead cover to protect the soldiers and the cleaning equipment.

Unit missions and time constraints. Because of the Army's worldwide missions, mortar platoons have limited live-fire and training time, and soldiers would rather fire allocated service ammunition than the SRTR. The time and effort required to coordinate or design an SRTR range with range control personnel sometimes weighs heavily against its use. Units need to plan ahead with range control on occupying the range, and it is best to have all the equipment and teams assigned before arriving at the range site.

Variations in range control procedures. Range control activities around the world vary in their treatment of SRTRs. Some installations allow soldiers more flexibility with training scenarios, while others restrict firing locations. There have been incidents where range control personnel have shut down training areas for several hours because the SRTR failed to function properly, because the SRTR was considered live ammunition instead of a training round. Many ranges also require units to close the range each time to recover ammunition. These factors can cause delays in

Soldiers in One Station Unit Training and the Infantry Mortar Leader Course train with the SRTR.

training and make it more difficult.

Ammunition turn-in procedures. The turn-in procedures for SRTR components vary greatly among ammunition supply activities around the world. Some installations require turn-in of all residue, and others require only that the expended ignition cartridge be turned in for accountability. DA Pamphlet 710-2-1, *Mission Training Plan for the Infantry Mortar Platoon, Section, and Squad*, requires that all residue be returned to the ammunition supply point. The interpretation of *residue* may vary between installations. The unit retains the body and fin assembly for future use with the M880/M766 refurbishment kits. A recent change to the technical manuals for the SRTR has made sure that the bodies and fins are classified as metal parts when kept in the unit's area. The Infantry School is in an excellent position to provide standardized instructions to all range control activities on the correct procedures for issue and turn-in of SRTRs.

Lack of requirements to fire the SRTR. ARTEP 7-90 MTP does not mandate the use of the training round for practice. The DA Pamphlet 350-38 STRAC only allows the substitution of SRTRs for high-explosive rounds. (The Infantry School is looking into the ARTEP issue.)

STRAC (DA PAM 350-38)			
ITEM	TRC-A	TRC-B	TRC-C
M766 Cartridges	27	16	07
M766 Kits	240	144	89
M880 Cartridges			
120mm	27	15	09
81mm	30	13	11
M880 Kits			
120mm	243	135	81
81mm	274	101	103

According to the STRAC authorization, for a four-gun 81mm mortar platoon, each gun is authorized 222 rounds of service ammunition (167 HE rounds, 30 WP rounds, and 25 illumination rounds), a total of 888. For the SRTR, each gun is authorized 30 training rounds, or a total of 120 SRTRs for the platoon. Each gun is also authorized 274 refurbishing kits or a total of 1,096 kits for the platoon. Using all of the authorized SRTRs would more than double a mortar platoon's firing opportunities.

The disadvantages of using the SRTR over service ammunition—the time required to prepare and set up the range to a 1:10 scale, recover the rounds down range, maintain the rounds, and refurbish the SRTR bodies—all have major effects on training time and readiness. But the SRTR is very useful when leaders understand its characteristics and realize how much more training they can conduct by using their full allocations of the M88 and M766 mortar training rounds. In this time of constrained resources, it simply makes good sense to supplement mortar crew training with the short range training rounds. Both the Infantry Mortar Leaders Course and One-Station Unit Train-ing teach students using the SRTR, and now it is time for the rest of the Army to follow their example for realistic, cost-efficient training.

Captain Gary D. Jones currently commands Company D, 2d Battalion, 29th Infantry Regiment, at Fort Benning. He previously served as a rifle platoon leader and company executive officer in Company B, 1st Battalion, 22d Infantry, at Fort Hood. He also served in the enlisted ranks and held all positions of the 11C MOS.